ARTICLES

Discovering *Gorilla*

Richard Conniff

On July 16, 1847, a missionary newly arrived in New York City from West Africa packed a collection of bones in a box and shipped them off to a colleague in Massachusetts. In a letter, Thomas S. Savage (Fig. 1), a graduate of Yale College and Yale Medical School, admitted to being "quite unwell," probably meaning "utterly wretched." He had already endured tropical diseases in Liberia off and on for more than a decade, and he'd seen his first two wives languish and die there, probably of malaria. He wasn't the sort to complain lightly.

Figure 1. A portrait of Thomas S. Savage. Source: public domain.

Richard Conniff, a longtime nature writer, is the author of *Swimming with Piranhas at Feeding Time: My Life Doing Dumb Stuff with Animals* and *The Ape in the Corner Office: How to Make Friends, Win Fights, and Work Smarter by Understanding Human Nature*. He also writes for Smithsonian, The Atlantic, National Geographic, and The New York Times. E-mail: richard.conniff@gmail.com

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In any case, his distress was evident. He had at first misplaced the list of contents for the box. And despite his original plan "to describe the bones of the animal myself," his illness obliged him to ask his colleague to handle that chore. Describing the creature's habits "will be about all that I shall be able to do." A few weeks later, as he recuperated at his family home in Middletown, CT, he wrote again: "Will you inform me whether you received the two canine teeth of the best male cranium? I remember that one came out, but cannot tell whether I replaced it. I have not seen it since I sent the bones."

What he sent was sensational enough. In mid-August at the Boston Society of Natural History, Savage and his co-author, Harvard anatomist Jeffries Wyman (Fig. 2), together presented one of the most startling and important discoveries in the science of life on Earth, a disturbingly familiar creature that would soon enter popular lore and play a key part in the coming debate over Darwinian evolution.[1]

They called their new species "gorilla."

A casual reader browsing through the biological literature today could easily get the impression that the discovery of the gorilla was the work of Richard Owen (Fig. 3), the ambitious British biologist best known for coining the name "dinosaur"[2] and for disputing Darwin. Credit also sometimes goes to the American explorer Paul du Chaillu, who, in the 1850s, became the first Westerner to give the outside world an eyewitness account of gorillas in the wild.[3]

In fact, the scientific discovery of the gorilla was entirely a collaboration between Savage and Wyman,[4] one from Yale, the other from Harvard, both trained as physicians, both from old and somewhat starchy New England stock. At a time when many scientists competed fiercely to discover new species, even stealing credit from one another, the two American naturalists were meticulously fair and almost comically modest. Thus, when Wyman, the professional anatomist, entered the new species into the annals of science, he sidestepped scientific immortality and named Savage as the describer: *Troglodytes gorilla*, Savage. Savage responded in turn with courtly dismay: "I ... very much regret that you have done it; for it cannot be an honest act on my part to desire to appropriate to myself that to which I have no claim. I look upon you as the describer." For their gentlemanly behavior, history has largely forgotten them.

Savage was the key to the discovery, in the right place and with the right background to recognize from a single skull the existence of the largest primate on Earth, a creature Richard Owen would later describe as "the most portentous and diabolical caricature of humanity that an atrabilious poet ever conceived or a naturalist ever realized."[5] Except for vague rumors, this behemoth had somehow escaped the attention of Europeans traveling the coast of West Africa for the previous 400 years.

Figure 2. Jeffries Wyman. Source: public domain.

By the time he made his discovery, Savage was an old Africa hand. He'd arrived on the continent for the first time at the age of 32, on Christmas Day, 1836. Though he was just three years out of Yale Medical School, he'd taken up his station at Cape Palmas, Liberia (Fig. 4), primarily as an Episcopal missionary (with a degree from the Theological Seminary of Virginia), and only secondarily as a doctor. He served in Liberia with what seems now like an odd mix of Christian colonial fervor and considerable scientific curiosity.

As a missionary and doctor, he came to know "the African's mind & tongue," which in Cape Palmas meant Grebo. As a naturalist, he also brought a keen eye and unusual depth of knowledge to the discovery of African species. Clergymen then commonly studied the natural world as a way to understand and glorify the mind of God. But Savage also seemed to relish nature for its own sake. He regularly shipped insect specimens back to a friend in England. Later, he would publish the first detailed description of the behavior of driver ants,[6] not a study for the faint of heart. (When he presented his pinky to the decapitated head of one soldier ant, it bit so powerfully "that the point of the mandibles met beneath the cuticle." Then it withdrew and started digging in with alternating knife strokes, "wounding and cutting wider and deeper.")[6:10]

While Savage proselytized in Africa, Jeffries Wyman devoted himself to anatomical studies and bided his time, hoping his Boston friends would secure him a position on the faculty at Harvard. He spent a year studying anatomy in Paris and then, under the tutelage of Richard Owen, in London. For five years he taught anatomy and physiology at a medical school in Richmond, Virginia. Upon returning to Boston, he held positions at both Harvard College and Harvard Medical School and was also the first director of Harvard's Peabody Museum.[7]

Savage and Wyman first met in August 1843, when the missionary returned by way of Boston for ten months of recovery at home. They collaborated almost immediately on a paper about chimpanzees.[8] "The breasts were flabby and slightly protuberant," Savage reported,[8:368] sounding more like a doctor than a missionary. He went on to comment learnedly on the tendency of other biologists to confuse the placement of the big toe in chimpanzees with that of the orangutan. Though both primates were already known to European scientists, they were poorly understood. He also challenged the great French anatomist Georges Cuvier's interpretation of the chimpanzee's prominent brow ridge.[8] Savage and Wyman's self-assurance and detailed knowledge about chimpanzee anatomy would soon prove critical to the discovery of the gorilla.

Savage's moment came, oddly, after he had already sailed for home early in 1847, at the end of his years in Africa. His route from Liberia took him eastward at first, under the belly of West Africa, to the Gaboon (now Gabon) River. There he was "unexpectedly detained" for more than a month. Savage stayed at the house of a friend and fellow missionary, Rev. John L. Wilson, in a village just south of what is now the capital city of Libreville.

Like other European visitors in Africa, Wilson apparently decorated his home with African curiosities. One skull immediately caught Savage's attention. It was too large for a chimpanzee, with huge, glowering eye sockets, a high bony sagittal ridge running back like a Mohawk across the top of the skull, and a nuchal crest like a broad shelf across the back—anchor points for huge jaw and neck muscles (Fig. 5).

Savage questioned the local hunters, who told him about "a monkey-like animal, remarkable for its size, ferocity and habits."[4:420] The shape of the skull, combined with "information derived from several intelligent natives," convinced him that he was looking at "a new species of

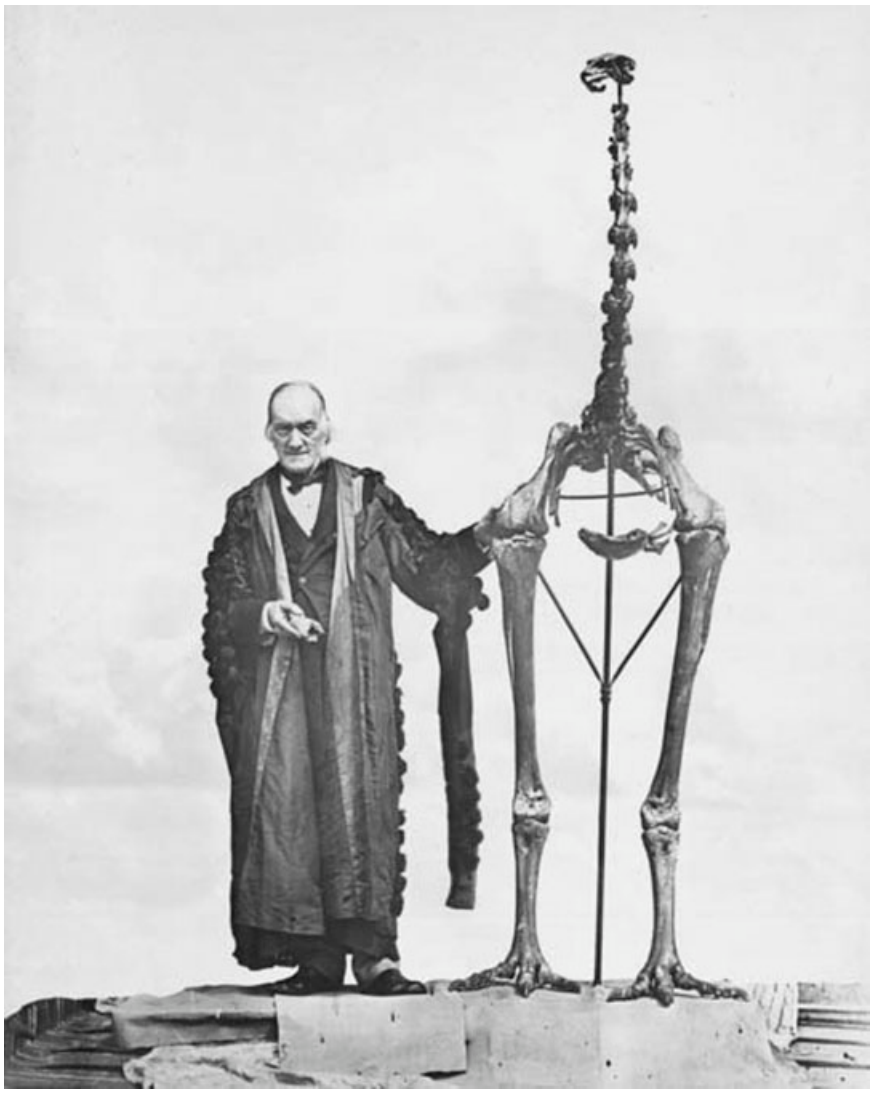

Figure 3. Richard Owen in 1879 with his reconstructed moa (*Dinornis giganteus*). Source: public domain.

Orang."[4:420] (The Malay word *orang*, made famous by the Southeast Asian ape, was still broadly applied to all great apes.).

Savage had corresponded in the past with Richard Owen at the Royal College of Surgeons and Samuel Stutchbury, curator of the Bristol Institution for the Advancement of Science. Now he wrote to both. "I have found the existence of an animal of an extraordinary character in this locality," he told Owen, and sent along detailed drawings of the skull, asking him to compare it with an orangutan skull in the Royal College collection.

Savage never actually laid eyes on a living gorilla. He was waiting for his ship to head home, and the nearest population was several days' travel up the Gabon River. But he was a good interviewer. Instead of the "marvellous accounts given by the natives ... to credulous traders,"[4:424] local hunters gave him a remarkably accurate description of the gorilla's appearance and behavior. Among other things, he learned that a single adult male dominated each band of animals, and that the hair tended to go gray with age.[4] "The gait," Savage wrote, "is shuffling, the motion of the body, which is never upright as in man, but bent forward, is somewhat rolling, or from side to side."[4:423] The gorilla "has the power of moving the scalp freely forward and back, and when enraged, is said to contract it strongly over the brow ... so as to present an indescribably ferocious aspect."[4:423] But he added: "The silly stories about their carrying off women from the native towns, and vanquishing the elephants ... are unhesitatingly denied."[4:423]

Savage's pursuit of this information, and the feelers he put out for specimens, attracted the attention of other traders in Gabon, including an Englishman, Captain Wagstaff, who was in contact with Stutchbury and always on the lookout for interesting biological specimens. When a local hunter eventually presented Savage with skulls and an assortment of other bones from two males and two females of the new species, a bidding war ensued. Wagstaff, commanding a brig called the *John Cabot*, was assembling a cargo consisting mainly of elephant tusks, ebony, and nuts. But sea captains also customarily eked out their wages with "private trade" in anything they calculated would sell back home, including natural curiosities.

Writing to Wyman soon after his return to the United States, Savage complained: "I had three competitors for them, two sea captains & one missionary, who raised by their eagerness the expectations of the natives to a high pitch. Nor should I have succeeded in getting them at all, had it not been for his host and fellow missionary, J. L. Wilson, "who exerted his influence with the chief & master of the slave who killed the animals. Others stood ready to pay almost any sum for them, & I believe they constitute the only set that has ever been taken out of the Gaboon." The bones had cost him $25, a lordly sum, which no doubt helped, along with admiration for his prowess, to win freedom from slavery for the hunter.[4]

But for the missionary, it was also "more than I am able to lose." Though he wanted to donate the bones to the cabinet of the Boston Society of Natural History and was "sorry to be under the necessity of requiring anything for them," he was obliged to offer them to anyone who could reimburse his costs. Wyman, who had just obtained the faculty

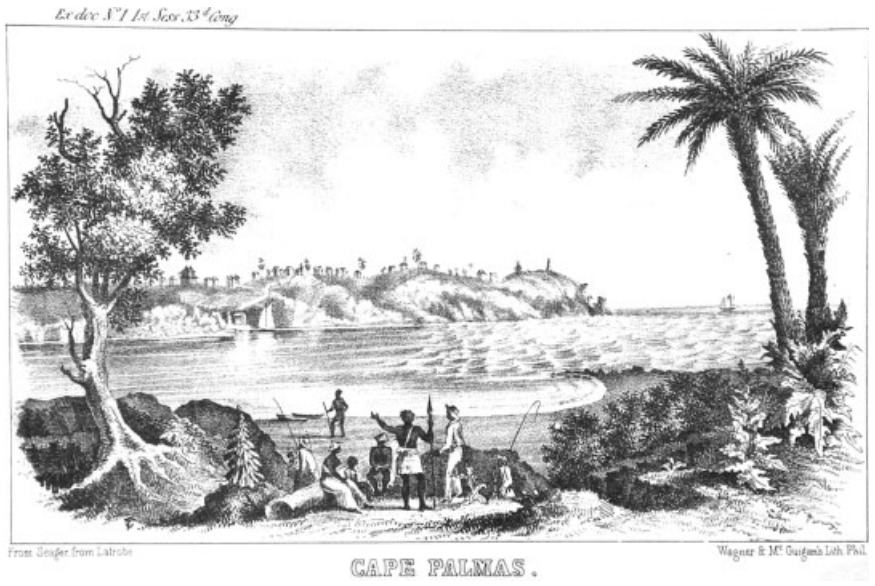

Figure 4. Cape Palmas, Liberia, where Savage worked as a missionary, a doctor, and a naturalist. Source: public domain.

position at Harvard for which he had been patiently waiting, put payment in the mail by the next post.

Savage had hoped the species would become commonly known by its Gabon name, anglicized *engé-ena*. But he left the choice of the scientific name to Wyman, who noted that the ancient Carthaginian explorer Hanno had used the word "gorilla" for "wild men" living on the coast of West Africa. Thus, the gorilla ended up with an African name in any case, *gorel* being a word used by the Fulani of West Africa, for "little men," or Pygmies.[9]

In their letters back and forth, Wyman suggested that Savage write to the *Annals & Magazine of Natural History* in London to establish priority for his discovery. "I will do so, but I do not view it of any consequence," Savage replied, a little naively. "Should any one be fortunate enough to have discovered it & forestal me, I must say that I shall have no regrets, inasmuch as it will be secured to science."

He would feel differently later. Indeed, their correspondence suggests that, beneath their courtly manners, both Savage and Wyman cared deeply about being first. In February 1848, Richard Owen published what he apparently took to be the first scientific description of the new species.[10] Wyman later admitted to being "not a little surprised" by this maneuver, as Owen "must have known that we either had or intended to describe the crania & bones brought back by yourself from Africa." In fact, he could hardly have missed it: The placeholder notice suggested by Wyman[11] had actually appeared the previous October in an issue of *Annals & Magazine of Natural History* dominated by Owen's own article on the plesiosaurus.[12] It was the first printed reference to the gorilla, under the headline "new Orang-Outang,"[11] and announced that a description would appear shortly in the *Journal of the Boston Society of Natural History*.

When Savage saw Owen's article, he reacted with uncharacteristic

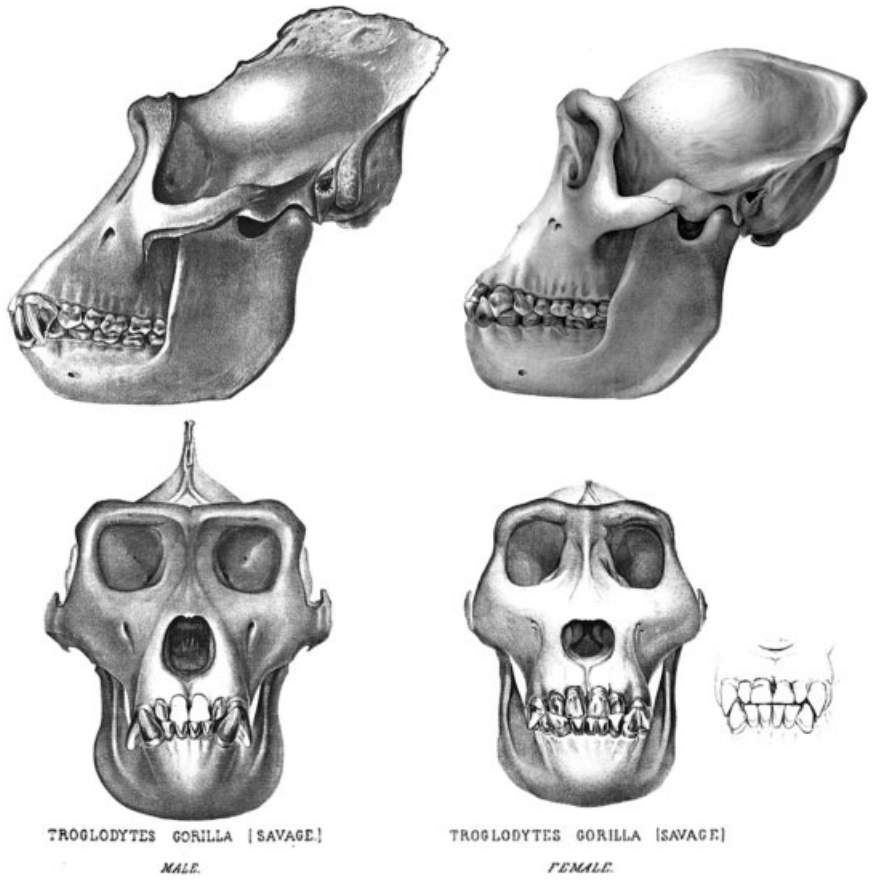

Figure 5. Drawings of the type specimens of *Troglodytes gorilla*, first published by Savage & Wyman in 1847.[4] Image of female skull from the collections of the Ernst Mayr Library, Museum of Comparative Zoology, Harvard University.

rancor, directed not at Owen but at Stutchbury, who had never even bothered to reply to Savage's letter from Gabon seeking information. Only a few years earlier, Savage had arranged to have the body of a pregnant chimp packed in a cask and shipped to Stutchbury. "I scarcely know how and certainly never can return you proper thanks," Stutchbury had replied, "for the very kind manner you responded to the desire of a perfect stranger." But now it looked to Savage as if Stutchbury had leaped at the possibility of a huge new primate and done his best to steal credit for the discovery. In a note to Wyman, Savage wrote, "Had I not taken the precaution ... at your suggestion to announce ... the discovery" through a British colleague, then "Mr. Stutchbury's efforts" would have given the discovery "to himself or Capt. Wagstaff."

From Owen's perspective, there was nothing improper about it. His article freely recounted how Stutchbury "had requested some of the captains of vessels trading from Bristol to the Gaboon River to make inquiries respecting the species and endeavour to obtain specimens of it."[10:30] Wagstaff had, in fact, eventually succeeded in getting additional skulls, after Savage's departure for the United States. He delivered them to Stutchbury on his return to Bristol in November 1847, then promptly died "of African fever." Stutchbury in turn handed the skulls to Richard Owen, as the most qualified anatomist for a proper scientific description.

Owen was by then already earning an ugly reputation among his fellow naturalists. Just the year before, he had presided over a meeting of the Royal Society at which his own paper about a squid-like fossil[13] had been nominated for the Royal Medal for the advancement of natural knowledge. After Owen won this honor, it turned out that the fossil described and named in his paper had actually been described four years earlier by an amateur paleontologist at a meeting Owen attended.

But when it came to the gorilla, Savage wrote Wyman, the British anatomist acted "in the whole matter like a gentleman." Having received the skulls from Stutchbury, Owen quickly published his description in the *Transactions of the Zoological Society of London*.[14] But if Stutchbury had been intending to steal the glory of the discovery, as Savage suspected, then Owen's proposed name for the animal was a clear rebuke. He called it *Troglodytes savagei*, "after Dr. Thos S. Savage, by whom it had been discovered and its existence made known to Professor Owen ...."[10:27]

The evidence suggests that Savage was being too harsh on Stutchbury, whose own notes about the discovery also give proper credit to Savage. But Savage may also have been too kind to Owen. Wyman seemed to think so, despite his own close relationship to Owen. In 1866, in a lined notebook, he prepared a handwritten account of the discovery. He apparently never intended it for publication; that wasn't his style. But for the record, he carefully underscored the relevant dates: "A joint memoir was presented by us to the Boston Society of Natural History August 18th 1847. ... An account ... was presented by Prof. O. to the Zoological Society of London Feb. 22 1848 six months after our memoir had been read in Boston."

On learning of the previous publication, Owen had no choice but to acknowledge that the American naturalists had described the species first. That meant the species name *gorilla* would prevail, with *savagei* becoming a mere synonym. This was no doubt a good thing. In coining the name dinosaurs, meaning "terrible lizards," Owen had already demonstrated a penchant for what one historian has called "flesh-creeping suggestiveness."[15:62] Gorillas suffered right from the start under an exaggerated reputation for ferocity, and naming them "savages" surely would not have helped. A few months after his own article, Owen added Wyman's description of the bones into the *Transactions of the Royal Zoological Society*.[14] But in his notebook, Wyman pointedly remarked, "It does not appear however either in the *Proceedings* or the *Transactions* at what time our memoir was published nor that we had anticipated him in our description."

Wyman added, "The credit of the discovery clearly belongs to Mr. Wilson & Dr. Savage chiefly to the latter, who first became convinced of the fact that the species was new, and who first brought it to the notice of naturalists. The species therefore stands recorded *Troglodytes gorilla*, Savage." Because the paper describing the new species consisted of two parts, a description by Savage and a more detailed anatomical comparison by Wyman, subsequent authors have alternately ascribed the name to either Savage alone[16] or to both authors.[17] A few years later, French zoologist Geoffroy Saint-Hilaire elevated the new ape to its own genus.[18] The late nineteenth century saw a plethora of new species described for this large ape.[17,19,20] In 1929, a zoological revision by the Harvard zoologist Harold Coolidge[17] winnowed this profusion of names down to the two forms most commonly recognized today, the western gorilla, *Gorilla gorilla*, and the eastern gorilla, *Gorilla beringei*.

THE IMPACT OF THE GORILLA

Uneasy questions about human origins had arisen with the description of each new primate species at least since 1699, when the London physician Edward Tyson dissected one of the first chimpanzees to arrive in England. In a "dedicatory epistle" to his aristocratic patron, Tyson cushioned the full impact of his findings, noting merely the similitude "between the lowest Rank of Men, and the highest kind of animals."[21:iii] But with the gorilla, the disturbing questions about our relationship to other primates burst forth into furious public debate, often driven by powerful undercurrents of class and race.

The racism was evident from the start. In his section of the 1847 paper announcing the gorilla to the outside world, Wyman wrote that any anatomist "who takes the trouble to compare the skeletons of the Negro and Orang, cannot fail to be struck at sight with the wide gap which separates them."[4:441] But then he added, "Negro and Orang do afford the points where man and the brute ... most nearly approach each other."[4:441] Like Tyson, Wyman was

perhaps trying to minimize the similarity between gorillas and humans by deflecting it onto "men of the lowest rank." But other, more polemical, writers would soon use that sort of thinking to justify keeping blacks as slaves. In England, in a curious twist on progressive thinking, some intellectuals accepted that humans had descended from apes, but argued that blacks and whites had descended from different species.[22] Likewise, the humor magazine *Punch* turned Irish nationalists into "Mr. O'Rangoutang" and "Mr. G. O'Rilla,"[23] rendering them, in the words of historian Adrian Desmond, "fit to be shot down."[22:296]

For Richard Owen, the gorilla would become the chief weapon in a bizarre war against evolutionary thinking, particularly after Charles Darwin published *On the Origin of Species* in 1859.[24] Despite his own lower middle class background, Owen had risen to the top of London society, with a powerful position at the British Museum, a residence provided by the Queen, and the privilege of lecturing to the royal children on zoology. The establishment turned to him, as the nation's leading anatomist, to defend the status quo. The unruly mob was all too gleefully aware that evolutionary ideas put lords and lower classes on roughly equal footing, as apes one or two steps removed. Owen dutifully argued for a divine "archetypal light" guiding the development of species. He proposed that humans belonged to a separate sub-class from all other mammals, the Archencephala, or "ruling brains." We differed from the gorillas and other apes, he announced, on the basis of three brain structures found only in humans.

Unfortunately for Owen, Thomas Henry Huxley, "Darwin's bulldog," would make a public sport out of demonstrating how Owen had fabricated or distorted his evidence, and even contradicted his own research, in making this argument. Huxley set out "to nail ... that mendacious humbug ... like a kite to the barn door."[25:77] The opportunity came at an 1860 meeting in Oxford, where Huxley rose after Owen had finished speaking and categorically demolished the fiction "that the difference between the brain of the gorilla and man was so great."[26:10] The gorilla thus set the terms for the clash two days later between Huxley and Samuel Wilberforce, the bishop of Oxford, at which Wilberforce sarcastically "begged to know was it through his grandfather or his grandmother" that Huxley "claimed descent from a monkey?" Huxley's reply concluded with the famous remark that he "was not ashamed to have a monkey for his ancestor; but he would be ashamed to be connected with a man who used great gifts to obscure the truth."

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The public loved it, and they loved the gorilla, too, particularly after the explorer Paul du Chaillu arrived on the scene, full of adventure stories from Africa and bearing the preserved specimens of complete adults. The gorilla became a creature not just of serious scientific discussion but of sideshows and tabloid newspapers. A "gorilla ballet" went thumping across the London stage, and in parlors around Europe and the United States, amateur pianists performed a "Gorilla Quadrille".[27]

REQUIEM

The two men who had started it all stayed apart from the fray, possibly out of dismay or even horror. Savage's African writings, with their respectful reliance on local knowledge, suggest that he would have had no part in the racial misuse of the gorilla. Nor did his discovery seem to cause him any religious doubt. For others, the gorilla would come to threaten the central place of humanity in a divinely ordained universe almost as profoundly as had the realization that the sun did not revolve around the Earth. But not, apparently, for Savage, who returned to his calling as a clergyman. He helped raise four children by his third wife and served as a pastor in Mississippi, Maryland, and finally Rhinecliff, New York, where he died at the age of 76. His tombstone there describes him as a "pioneer missionary" and makes no reference to his medical or scientific work. Wyman meanwhile became a quiet advocate of Darwinian theory, but continued with his anatomical work and left others to make the case in public.[6] At his death, the poet James Russell Lowell eulogized Wyman in a sonnet that might have applied to either man: "simple, modest, manly, true, Safe from the Many, honored by the Few."[28:346]

No one knows what happened to two of the four gorilla skulls Savage brought home in 1847. In his letter to Wyman, he had asked that they be set aside for J. L. Wilson, his host in Gabon. So perhaps they are gathering dust even now as curios in some family member's home. Recently, in the course of preparing a catalogue, a Harvard mammalogist went searching for them at natural history museums around the East Coast, without success.[29]

The other two skulls, male and female, are stored now on a bed of

Figure 6. Photograph of the holotype specimen in the Museum of Comparative Zoology, collected by Savage. Photograph courtesy of MCZ, Harvard. (Color figure can be viewed in the online issue, which is available at www.interscience.wiley.com.)

white polyethylene foam in a metal drawer in a climate-controlled room at Harvard's Museum of Comparative Zoology. They are the type specimens, the models by which the species is defined for scientists everywhere. The female skull has been cut in half, from front to back, as if Wyman or some other researcher at some point went looking to see even the vaguest cranial evidence for the brain differences Owen kept going on about.

The male skull is largely intact, glowering and a little forlorn, with the collection number neatly inked by Wyman on the zygomatic arch. The surface of the skull is mottled with black flecks and polished with handling, as if the hunter has just pulled it out of his kit bag after a long journey. The canine tooth on the upper left side is as thick as a finger. But just as Savage had feared in that feverish summer of 1847, the right canine tooth is still missing (Fig. 6).

ACKNOWLEDGMENTS

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